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Mitchell S. Bigel
Myers Bigel Sibley & Sajovec, P.A.
P. O. Box 37428
Raleigh, NC 27627

EXAMINER	
SOBUTKA, PHILIP	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/795,875	KARABINIS, PETER D.	
	Examiner	Art Unit	
	Philip J. Sobutka	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-73* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-73* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *3/8/04, 3/3/06, 4/9/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed March 8, 2004 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

2. Citation # 8 has not been considered.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-3,10-14,17,18,23-26,31-33,39-43,49-52,56,57,63-65,68,71-73 are rejected under 35 U.S.C. 102(e) as being anticipated by Arviv et al (US 2003/0045307).

Consider claim 1. Arviv teaches a wireless communication method comprising:

transmitting wireless communications from at least two radio terminals to a base station co-channel over a return link using a return link alphabet (Arviv see for example figure 6a, paragraphs 54,55); and

transmitting wireless communications from the base station to the at least two radio terminals over a forward link using a forward link alphabet that has more symbols than the return link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

2. A method according to claim 1 wherein transmitting wireless communications from the base station to the at least two radio terminals comprises: transmitting wireless communications from the base station to the at least two radio terminals non-co-channel over a forward link using a forward link alphabet that has more symbols than the return link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

3. A method according to claim 1 wherein transmitting wireless communications from at least two radio terminals to a base station comprises: transmitting wireless communications from at least two radio terminals to at least one antenna at the base station co-channel over a return link using a return link alphabet (As described in the

instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

10. A method according to claim 1 wherein transmitting wireless communications from at least two radio terminals to a base station comprises: transmitting wireless communications from a single linearly-polarized antenna at each of the at least two radio terminals to a base station co-channel over a return link using a return link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

11. A method according to claim 1 further comprising: decoding the wireless communications that are transmitted from the at least two radio terminals to the base station co-channel (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

Consider claim 12. Arviv teaches a wireless communication method comprising:

transmitting wireless communications from at least two radio terminals to a base station over a return link using a return link alphabet; and transmitting wireless

communications from the base station to the at least two radio terminals co-channel over a forward link using a forward link alphabet that has more symbols than the return link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

13. A method according to claim 12 wherein transmitting wireless communications from at least two radio terminals to a base station comprises: transmitting wireless communications from at least two radio terminals to a base station co-channel over a return link using a return link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

14. A method according to claim 12 wherein transmitting wireless communications from the base station to the at least two radio terminals comprises: transmitting wireless communications from the base station to at least one antenna at each of the at least two radio terminals co-channel over a forward link using a forward link alphabet that has more symbols than the return link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph

26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

17. A method according to claim 12 wherein transmitting wireless communications from the base station to the at least two radio terminals comprises: transmitting wireless communications from at least one antenna at the base station to the at least two radio terminals co-channel over a forward link using a forward link alphabet that has more symbols than the return link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

18. A method according to claim 12 wherein transmitting wireless communications from the base station to the at least two radio terminals comprises: transmitting wireless communications from at least one linearly-polarized antenna at the base station to the at least two radio terminals co-channel over a forward link using a forward link alphabet that has more symbols than the return link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

23. A method according to claim 12 further comprising: decoding the wireless communications that are transmitted from the base station to the at least two radio

terminals co-channel (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

Consider claim 24. Arviv teaches a wireless communication method comprising: receiving wireless communications from a base station at a first radio terminal and at least one second radio terminal that is proximate the first radio terminal, over a forward link, co-channel; relaying the wireless communications from the at least one second radio terminal to the first radio terminal over a short-range wireless link; and using the wireless communications that are relayed to the first radio terminal from the at least one second terminal over the short-range wireless link to process the wireless communications that are received from the base station at the first radio terminal (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

25. A wireless communication method according to claim 24: wherein receiving wireless communications from a base station at a first radio terminal and at least one second radio terminal that is proximate to the first radio terminal, over a forward link, co-channel comprises receiving wireless communications from a base station at a first radio terminal and at least one second radio terminal that is proximate to the first radio

terminal, over a forward link, co-channel using a forward link alphabet; and wherein the method further comprises transmitting wireless communications from the first radio terminal and at least one second radio terminal to the base station co-channel using a return link alphabet that has fewer symbols than the forward link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

26. A method according to claim 25 wherein transmitting wireless communications from the first radio terminal and at least one second radio terminal to the base station co-channel using a return link alphabet that has fewer symbols than the forward link alphabet comprises: transmitting wireless communications from the first radio terminal and at least one second radio terminal to at least one antenna at the base station co-channel using a return link alphabet that has fewer symbols than the forward link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

Consider claim 31. Arviv teaches a wireless communication method comprising: bidirectional transmitting wireless communications co-channel in time division duplex (Arviv see for example paragraph 5) from at least two radio terminals to a base station

over a return link using a return link alphabet and from the base station to the at least two radio terminals over a forward link using a forward link alphabet that has more symbols than the return link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

32. A method according to claim 31 wherein bidirectional transmitting comprises: bidirectionally transmitting wireless communications co-channel in time division duplex from at least two radio terminals to at least one antenna at the base station over a return link using a return link alphabet and from the at least one antenna at the base station to the at least two radio terminals over a forward link using a forward link alphabet that has more symbols than the return link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

33. A method according to claim 31 wherein bidirectionally transmitting comprises: bidirectionally transmitting wireless communications co-channel in time division duplex from at least two radio terminals to at least one multiple-polarized antenna at the base station over a return link using a return link alphabet and from the at least one multiple-polarized antenna at the base station to the at least two radio

terminals over a forward link using a forward link alphabet that has more symbols than the return link alphabet.

39. A method according to claim 31 wherein bidirectionally transmitting comprises: bidirectionally transmitting wireless communications co-channel in time division duplex from a single linearly-polarized antenna at each of the at least two radio terminals to at least one antenna at the base station over a return link using a return link alphabet and from the at least one antenna at the base station to the single linearly-polarized antenna at each of the at least two radio terminals over a forward link using a forward link alphabet that has more symbols than the return link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

40. A method according to claim 31 further comprising: decoding the wireless communications that are transmitted co-channel in time division duplex from the at least two radio terminals to the base station and from the base station to the at least two radio terminals (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

Consider claim 41. Arviv teaches a base station comprising: a receiver that is configured to receive wireless communications from at least two radio terminals co-channel over a return link using a return link alphabet; and a transmitter that is configured to transmit wireless communications to the at least two radio terminals over a forward link using a forward link alphabet that has more symbols than the return link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

42. A base station according to claim 41 wherein the transmitter is configured to transmit wireless communications to the at least two radio terminals non-co-channel over the forward link using a forward link alphabet that has more symbols than the return link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

43. A base station according to claim 41 wherein the receiver is configured to receive wireless communications from at least two radio terminals co-channel over a return link using a return link alphabet at least one antenna (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26.

Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

Consider claim 49. Arviv teaches a base station comprising: a receiver that is configured to receive wireless communications from at least two radio terminals over a return link using a return link alphabet; and a transmitter that is configured to transmit wireless communications to the at least two radio terminals co-channel over a forward link using a forward link alphabet that has more symbols than the return link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

50. A base station according to claim 49 wherein the receiver is configured to receive wireless communications from at least two-radio terminals co-channel over a return link using a return link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

51. A base station according to claim 49 wherein the transmitter is configured to transmit wireless communications to the at least two radio terminals co-channel over a forward link using a forward link alphabet that has more symbols than the return link

alphabet at least one antenna (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

52. A base station according to claim 49 wherein the transmitter is configured to transmit wireless communications to the at least two radio terminals co-channel over a forward link using a forward link alphabet that has more symbols than the return link alphabet at least one linearly-polarized antenna (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM, while the return is QPSK, see for example figure 6a, paragraphs 54,55).

Consider claim 56. Arviv teaches a base station comprising: a time division duplex transceiver (Arviv see for example paragraph 5) that is configured to receive wireless communications co-channel from at least two radio terminals over a return link using a return link alphabet and to transmit wireless communications to the at least two radio terminals over a forward link using a forward link alphabet that has more symbols than the return link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward

signal being QAM; while the return is QPSK, see for example figure 6a, paragraphs 54,55).

57. A base station according to claim 56 wherein the transceiver is configured to receive wireless communications co-channel from at least two radio terminals over a return link using a return link alphabet and to transmit wireless communications to the at least two radio terminals over a forward link using a forward link alphabet that has more symbols than the return link alphabet at least one antenna (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM; while the return is QPSK, see for example figure 6a, paragraphs 54,55).

63. A base station according to claim 56 wherein the time division duplex transceiver is further configured to decode the wireless communications that are received co-channel from the at least two radio terminals (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM; while the return is QPSK, see for example figure 6a, paragraphs 54,55).

Consider claim 64. Arviv teaches a radio terminal comprising: a transmitter that is configured to transmit wireless communications to a base station over a return link using a return link alphabet; and a receiver that is configured to receive at least two

wireless communications from the base station co-channel over a forward link using a forward link alphabet that has more symbols than the return link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM; while the return is QPSK, see for example figure 6a, paragraphs 54,55).

65. A radio terminal according to claim 64 wherein the receiver is configured to receive at least two wireless communications from the base station co-channel over a forward link using a forward link alphabet that has more symbols than the return link alphabet at least one antenna (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM; while the return is QPSK, see for example figure 6a, paragraphs 54,55).

68. A radio terminal according to claim 64 wherein the receiver is further configured to decode at least one of the at least two wireless communications that are received from the base station co-channel (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM; while the return is QPSK, see for example figure 6a, paragraphs 54,55).

Consider claim 71. Arviv teaches a radio terminal comprising: a time division duplex transceiver that is configured to transmit wireless communications to a base station over a return link using a return link alphabet and to receive wireless communications from the base station over a forward link using a forward link alphabet that has more symbols than the return link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM; while the return is QPSK, see for example figure 6a, paragraphs 54,55).

72. A radio terminal according to claim 71 wherein the time division duplex transceiver is configured to transmit wireless communications from a single linearly-polarized antenna to the base station over a return link using a return link alphabet and to receive wireless communications from the base station at the single linearly-polarized antenna over a forward link using a forward link alphabet that has more symbols than the return link alphabet (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM; while the return is QPSK, see for example figure 6a, paragraphs 54,55).

73. A radio terminal according to claim 71 wherein the transceiver is further configured to decode the wireless communications that are received from the base station over the forward link (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet

having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM; while the return is QPSK, see for example figure 6a, paragraphs 54,55).

5. Claim 69 is rejected under 35 U.S.C. 102(e) as being anticipated by Larsson (US 2004/0266339).

(Note that in order to overcome the filing date of Larsson, specific citations supporting the claimed features should be shown for the relevant priority document.)

Consider claim 69. Larsson teaches a radio terminal comprising: a receiver that is configured to receive wireless communications from a base station over a forward link, to receive the wireless communications from at least one second radio terminal over a short-range wireless link, and to use the wireless communications that are received from the at least one second terminal over the short-range wireless link to process the wireless communications that are received from the base station (Larsson see figures 1a, paragraphs 4-7).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 4-9,15,16,19-22,27-30,34-38,44-48,53-55,58-62,66,67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arviv in view of Eidson (US 6,411,824)

4. Arviv lacks a teaching of a method according to claim 1 wherein transmitting wireless communications from at least two radio terminals to a base station comprises: transmitting wireless communications from at least two radio terminals to at least one multiple-polarized antenna at the base station co-channel over a return link using a return link alphabet.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

5. Arviv lacks a teaching of a method according to claim 1 wherein transmitting wireless communications from at least two radio terminals to a base station comprises:

transmitting wireless communications from at least two radio terminals to a plurality of multiple-polarized antennas at the base station co-channel over a return link using a return link alphabet.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

6. Arviv lacks a teaching of a method according to claim 1 wherein the base station includes a plurality of sectors and wherein transmitting wireless communications from at least two radio terminals to a base station comprises: transmitting wireless communications from at least two radio terminals to a plurality of multiple-polarized antennas in a sector of the base station co-channel over a return link using a return link alphabet.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

7. Arviv lacks a teaching of a method according to claim 1 wherein the base station includes a plurality of sectors and wherein transmitting wireless communications from at least two radio terminals to a base station comprises: transmitting wireless

communications from at least two radio terminals to at least one multiple-polarized antenna in at least two sectors of the base station co-channel over a return link using a return link alphabet.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

8. Arviv lacks a teaching of a method according to claim 1 wherein the base station is a first base station and wherein transmitting wireless communications from at least two radio terminals to a base station comprises: transmitting wireless communications from at least two radio terminals to at least one multiple-polarized antenna at the first base station and at least one multiple-polarized antenna at a second base station co-channel over a return link using a return link alphabet.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

9. Arviv lacks a teaching of a method according to claim 6 wherein transmitting wireless communications from at least two radio terminals to a plurality of multiple-polarized antennas in a sector of the base station co-channel over a return link using a

return link alphabet comprises: selectively transmitting wireless communications from at least two radio terminals to a plurality of multiple-polarized antennas in a sector of the base station co-channel over a return link using a return link alphabet if the at least two radio terminals are separated by more than a predetermined distance.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

15. Arviv lacks a teaching of a method according to claim 12 wherein transmitting wireless communications from the base station to the at least two radio terminals comprises: transmitting wireless communications from the base station to at least one multiple-polarized antenna at each of the at least two radio terminals co-channel over a forward link using a forward link alphabet that has more symbols than the return link alphabet.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

16. Arviv lacks a teaching of a method according to claim 12 wherein transmitting wireless communications from the base station to the at least two radio terminals

comprises: transmitting wireless communications from the base station to a plurality of multiple-polarized antennas at each of the at least two radio terminals co-channel over a forward link using a forward link alphabet that has more symbols than the return link alphabet.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

19. Arviv lacks a teaching of a method according to claim 12 wherein transmitting wireless communications from the base station to the at least two radio terminals comprises: transmitting wireless communications from at least two linearly-polarized antennas at the base station to the at least two radio terminals co-channel over a forward link using a forward link alphabet that has more symbols than the return link alphabet.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

20. Arviv lacks a teaching of a method according to claim 12 wherein the base station includes a plurality of sectors and wherein transmitting wireless communications

from at least two linearly-polarized antennas at the base station to the at least two radio terminals comprises: transmitting wireless communications from at least two linearly-polarized antennas in a sector of the base station to the at least two radio terminals co-channel over a forward link using a forward link alphabet that has more symbols than the return link alphabet.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

21. Arviv lacks a teaching of a method according to claim 12 wherein the base station includes a plurality of sectors and wherein transmitting wireless communications from at least two linearly-polarized antennas at the base station to the at least two radio terminals comprises: transmitting wireless communications from at least one linearly-polarized antenna in at least two sectors of the base station to the at least two radio terminals co-channel over a forward link using a forward link alphabet that has more symbols than the return link alphabet.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

22. Arviv lacks a teaching of a method according to claim 12 wherein the base station is a first base station and wherein transmitting wireless communications from the base station to the at least two radio terminals comprises: transmitting wireless communications from at least one linearly-polarized antenna at the first base station and at least one linearly-polarized antenna at a second base station to the at least two radio terminals co-channel over a forward link using a forward link alphabet that has more symbols than the return link alphabet.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

27. Arviv lacks a teaching of a method according to claim 25 wherein transmitting wireless communications from the first radio terminal and at least one second radio terminal to the base station co-channel using a return link alphabet that has fewer symbols than the forward link alphabet comprises: transmitting wireless communications from the first radio terminal and at least one second radio terminal to a plurality of multiple-polarized antennas in a sector of the base station co-channel using a return link alphabet that has fewer symbols than the forward link alphabet.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious

to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

28. Arviv lacks a teaching of a method according to claim 25 wherein transmitting wireless communications from the first radio terminal and at least one second radio terminal to the base station co-channel using a return link alphabet that has fewer symbols than the forward link alphabet comprises: transmitting wireless communications from the first radio terminal and at least one second radio terminal to at least one multiple-polarized antenna in at least two sectors of the base station co-channel using a return link alphabet that has fewer symbols than the forward link alphabet.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

29. Arviv lacks a teaching of a method according to claim 25 wherein the base station is a first base station and wherein transmitting wireless communications from the first radio terminal and at least one second radio terminal to the base station co-channel using a return link alphabet that has fewer symbols than the forward link alphabet comprises: transmitting wireless communications from the first radio terminal and at least one second radio terminal to at least one multiple-polarized antenna at the first base station and at least one multiple-polarized antenna at a second base station co-

channel using a return link alphabet that has fewer symbols than the forward link alphabet.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

30. Arviv lacks a teaching of a method according to claim 27 wherein transmitting wireless communications from the first radio terminal and at least one second radio terminal to a plurality of multiple-polarized antennas in a sector of the base station co-channel using a return link alphabet that has fewer symbols than the forward link alphabet comprises: transmitting wireless communications from the first radio terminal and at least one second radio terminal to a plurality of multiple-polarized antennas in a sector of the base station co-channel using a return link alphabet that has fewer symbols than the forward link alphabet if the first radio terminal and the at least one second radio terminal are separated by more than a predetermined distance.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

34. Arviv lacks a teaching of a method according to claim 31 wherein bidirectionally transmitting comprises: bidirectionally transmitting wireless communications co-channel in time division duplex from at least two radio terminals to a plurality of multiple-polarized antennas at the base station over a return link using a return link alphabet and from the plurality of multiple-polarized antennas at the base station to the at least two radio terminals over a forward link using a forward link alphabet that has more symbols than the return link alphabet.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

35. Arviv lacks a teaching of a method according to claim 31 wherein the base station includes a plurality of sectors and wherein bidirectionally transmitting comprises: bidirectionally transmitting wireless communications co-channel in time division duplex from at least two radio terminals to a plurality of multiple-polarized antennas in a sector of the base station over a return link using a return link alphabet and from the plurality of multiple-polarized antennas in the sector of the base station to the at least two radio terminals over a forward link using a forward link alphabet that has more symbols than the return link alphabet.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see

for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

36. Arviv lacks a teaching of a method according to claim 31 wherein the base station includes a plurality of sectors and wherein bidirectionally transmitting comprises: bidirectionally transmitting wireless communications co-channel in time division duplex from at least two radio terminals to at least one multiple-polarized antenna in at least two sectors of the base station over a return link using a return link alphabet and from the at least one multiple-polarized antenna in the at least two sectors of the base station to the at least two radio terminals over a forward link using a forward link alphabet that has more symbols than the return link alphabet.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

37. Arviv lacks a teaching of a method according to claim 31 wherein the base station is a first base station and wherein bidirectionally transmitting comprises: bidirectionally transmitting wireless communications co-channel in time division duplex from at least two radio terminals to at least one multiple-polarized antenna at the first base station and at least one multiple-polarized antenna at a second base station over a return link using a return link alphabet and from the at least one multiple-polarized

antenna at the first base station and the at least one multiple-polarized antenna at the second base station to the at least two radio terminals over a forward link using a forward link alphabet that has more symbols than the return link alphabet.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

38. Arviv lacks a teaching of a method according to claim 35 wherein bidirectionally transmitting wireless communications co-channel in time division duplex from at least two radio terminals to a plurality of multiple-polarized antennas in a sector of the base station over a return link using a return link alphabet and from the plurality of multiple-polarized antennas in the sector of the base station to the at least two radio terminals over a forward link using a forward link alphabet that has more symbols than the return link alphabet comprises: selectively bidirectionally transmitting wireless communications co-channel in time division duplex from at least two radio terminals to a plurality of multiple-polarized antennas in a sector of the base station over a return link using a return link alphabet and from the plurality of multiple-polarized antennas in the sector of the base station to the at least two radio terminals over a forward link using a forward link alphabet that has more symbols than the return link alphabet if the at least two radio terminals are separated by more than a predetermined distance.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

44. Arviv lacks a teaching of a base station according to claim 41 wherein the receiver is configured to receive wireless communications from at least two radio terminals co-channel over a return link using a return link alphabet at least one multiple-polarized antenna.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

45. Arviv lacks a teaching of a base station according to claim 41 wherein the receiver is configured to receive wireless communications from at least two radio terminals co-channel over a return link using a return link alphabet at a plurality of multiple-polarized antennas.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious

to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

46. Arviv lacks a teaching of a base station according to claim 41 wherein the base station includes a plurality of sectors and wherein the receiver is configured to receive wireless communications from at least two radio terminals co-channel over a return link using a return link alphabet at a plurality of multiple-polarized antennas in a sector of the base station.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

47. Arviv lacks a teaching of a base station according to claim 41 wherein the base station includes a plurality of sectors and wherein the receiver is configured to receive wireless communications from at least two radio terminals co-channel over a return link using a return link alphabet at least one multiple-polarized antenna in at least two sectors.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

48. Arviv lacks a teaching of a base station according to claim 41 wherein the receiver is further configured to decode the wireless communications that are received from the at least two radio terminals co-channel (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM; while the return is QPSK, see for example figure 6a, paragraphs 54,55).

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

53. Arviv lacks a teaching of a base station according to claim 49 wherein the transmitter is configured to transmit wireless communications to the at least two radio terminals co-channel over a forward link using a forward link alphabet that has more symbols than the return link alphabet at least two linearly-polarized antennas.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

54. Arviv lacks a teaching of a base station according to claim 49 wherein the base station includes a plurality of sectors and wherein the transmitter is configured to transmit wireless communications to the at least two radio terminals co-channel over a forward link using a forward link alphabet that has more symbols than the return link alphabet at least two linearly-polarized antennas in a sector.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

55. Arviv lacks a teaching of a base station according to claim 49 wherein the base station includes a plurality of sectors and wherein the transmitter is configured to transmit wireless communications to the at least two radio terminals co-channel over a forward link using a forward link alphabet that has more symbols than the return link alphabet at least one linearly-polarized antenna in at least two sectors.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

58. Arviv lacks a teaching of a base station according to claim 56 wherein the transceiver is configured to receive wireless communications co-channel from at least

two radio terminals over a return link using a return link alphabet and to transmit wireless communications to the at least two radio terminals over a forward link using a forward link alphabet that has more symbols than the return link alphabet at least one multiple-polarized antenna.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

59. Arviv lacks a teaching of a base station according to claim 56 wherein the transceiver is configured to receive wireless communications co-channel from at least two radio terminals over a return link using a return link alphabet and to transmit wireless communications to the at least two radio terminals over a forward link using a forward link alphabet that has more symbols than the return link alphabet at a plurality of multiple-polarized antennas.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

60. Arviv lacks a teaching of a base station according to claim 56 wherein the base station includes a plurality of sectors and wherein the transceiver is configured to

receive wireless communications co-channel from at least two radio terminals over a return link using a return link alphabet and to transmit wireless communications to the at least two radio terminals over a forward link using a forward link alphabet that has more symbols than the return link alphabet at a plurality of multiple-polarized antennas in a sector.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

61. Arviv lacks a teaching of a base station according to claim 56 wherein the base station includes a plurality of sectors and wherein the transceiver is configured to receive wireless communications co-channel from at least two radio terminals over a return link using a return link alphabet and to transmit wireless communications to the at least two radio terminals over a forward link using a forward link alphabet that has more symbols than the return link alphabet at least one multiple-polarized antenna in at least two sectors.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

62. Arviv lacks a teaching of a base station according to claim 60 wherein the transceiver is configured to selectively receive wireless communications co-channel from at least two radio terminals to the plurality of multiple-polarized antennas in the sector over a return link using a return link alphabet if the at least two radio terminals are separated by more than a predetermined distance.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

66. Arviv lacks a teaching of a radio terminal according to claim 64 wherein the receiver is configured to receive at least two wireless communications from the base station co-channel over a forward link using a forward link alphabet that has more symbols than the return link alphabet at least one multiple-polarized antenna.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

67. Arviv lacks a teaching of a radio terminal according to claim 64 wherein the receiver is configured to receive at least two wireless communications from the base

station co-channel over a forward link using a forward link alphabet that has more symbols than the return link alphabet at a plurality of multiple-polarized antennas.

Eidson teaches a base station using diversity reception wherein the signal from two or more mobiles are received by two or more polarized antenna arrays (Eidson see for example figure 2, column 5, line 49 – column 6, line 22). It would have been obvious to one of ordinary skill in the art to modify Arviv to use the base station polarization diversity antenna arrangement of Eidson in order to improve system performance.

9. Claim 70 is rejected under 35 U.S.C. 103(a) as being unpatentable over Larsson in view of Arviv (US 2003/0045307).

70. Larsson lacks a teaching of a radio terminal according to claim 69: wherein the receiver is configured to receive wireless communications from the base station over a forward link using a forward link alphabet; and wherein the radio terminal further comprises a transmitter that is configured to transmit wireless communications to the base station using a return link alphabet that has fewer symbols than the forward link alphabet.

Arviv teaches using a forward link alphabet having more symbols that a reverse link alphabet. (As described in the instant specification, the forward alphabet having more symbols is a QAM modulated signal, while the return alphabet having fewer symbols is a QPSK signal, see paragraph 26. Arviv teaches the forward signal being QAM; while the return is QPSK, see for example figure 6a, paragraphs 54,55). Arviv teaches that the use of non-symmetric alphabets allows for the modulation type to

better respond to conditions and service needs (Arviv see for example paragraphs 9-10). It would have been obvious to one of ordinary skill in the art to modify Larsson to use to non-symmetric alphabets as taught by Arviv in order to better respond to conditions and service needs.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hakaste et al (US 6,377,817) and Serizawa et al (US 5,754,961) have been cited to show other radio systems employing asymmetric modulation.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip J Sobutka whose telephone number is 571-272-7887. The examiner can normally be reached Monday through Friday from 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on 571-272-4711.

12. The central fax phone number for the Office is 571-273-8300.

Most facsimile-transmitted patent application related correspondence is required to be sent to the Central FAX Number.

CENTRALIZED DELIVERY POLICY: For patent related correspondence, hand carry deliveries must be made to the Customer Service Window (now located at the Randolph Building, 401 Dulany Street, Alexandria, VA 22314), and facsimile transmissions must be sent to the Central FAX number, unless an exception applies. For example, if the examiner has rejected claims in a regular U.S. patent application, and the reply to the

examiner's Office action is desired to be transmitted by facsimile rather than mailed, the reply must be sent to the Central FAX Number.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

6/19/07

PHILIP J. SOBUTKA
PATENT EXAMINER

Philip J Sobutka

(571) 272-7887